

Listing of the Claims

1-9 (Canceled).

10 (Previously presented): A method for forming a node dielectric layer in deep trenches, comprising the steps of:

providing a crystalline silicon substrate with trenches formed therein, the trenches including exposed silicon surfaces;

removing a native oxide from the exposed silicon surfaces;

precleaning the exposed surfaces by employing hydrogen prebake after an amount of time has elapsed after the removing step;

exposing the exposed surfaces to ammonia to grow a continuous crystalline silicon nitride layer;

depositing an amorphous silicon nitride layer over the continuous crystalline silicon nitride layer; and

oxidizing the amorphous silicon nitride layer to form a node dielectric layer.

11 (Previously presented): The method as recited in claim 10, wherein the step of removing includes employing a hydrogen fluoride clean process to remove native oxide from the exposed surfaces.

12 (Previously presented): The method as recited in claim 10, wherein the step of precleaning the exposed surfaces by employing a hydrogen prebake is delayed from the step of removing by an interval of between about 30 seconds and about 3600 seconds.

13 (Original): The method as recited in claim 10, wherein the step of precleaning includes the step of prebaking the exposed surfaces in the presence of hydrogen gas at a temperature between about 400 °C and about 1300 °C.

14 (Original): The method as recited in claim 10, wherein the step of precleaning includes the step of prebaking the exposed surfaces in the presence of hydrogen gas at a pressure between about 10^{-9} Torr and about 600 Torr.

15 (Original): The method as recited in claim 10, wherein the step of exposing the exposed surfaces to ammonia to form a crystalline silicon nitride layer includes the step of introducing the ammonia at a temperature of between 400 °C and about 1300 °C.

16 (Original): The method as recited in claim 10, wherein the step of exposing the exposed surfaces to ammonia to form a crystalline silicon nitride layer includes to step of maintaining the ammonia at a presence of between about 10^{-6} Torr and about one atmosphere.

17-28 (Canceled).